

# Claims

[c1] What is claimed is:

1. An optical module comprising:

a first light-guide unit comprising a first prism, a second prism and a first mirror plane, wherein the first mirror plane is installed between the first prism and the second prism for reflecting and transmitting light;

a second light-guide unit comprising a third prism, a fourth prism and a second mirror plane, wherein the second mirror plane is installed between the third prism and the fourth prism for reflecting and transmitting light;

a third light-guide unit comprising a fifth prism, a sixth prism and a third mirror plane, wherein the third mirror plane is installed between the fifth prism and the sixth prism for reflecting and transmitting light; and

a holder comprising:

a first installation area for installing the first light-guide unit;

a second installation area for installing the second light-guide unit;

a third installation area for installing the third light-guide unit;

a first frame installed between the first installation area and the second installation area; and  
a second frame perpendicular to the first frame and installed between the second installation area and the third installation area;  
wherein a first plane of the first prism is attached to and glued to a first side of the first frame, a second plane of the third prism is attached to and glued to a second side of the first frame, a third plane of the fifth prism is attached to and glued to a third side of the second frame, and the first light-guide unit, the second light-guide unit, and the third light-guide unit are glued in the first installation area, the second installation area, and the third installation area respectively.

[c2] 2.The optical module of claim 1 wherein the first prism, the second prism, the third prism, the fourth prism, the fifth prism, and the sixth prism are glued to the holder.

[c3] 3.The optical module of claim 2 wherein the first prism, the second prism, the third prism, the fourth prism, the fifth prism, and the sixth prism are glued to the holder by glue being applied circularly on the holder.

[c4] 4.The optical module of claim 1 wherein the first mirror plane and the second mirror plane are perpendicular to each other, the first mirror plane and the third mirror

plane are parallel to each other, and the second mirror plane and the third mirror plane are perpendicular to each other.

[c5] 5.The optical module of claim 1 wherein the first side of the first frame is parallel to the second side of the first frame.

[c6] 6.A method for assembling an optical module, the optical module comprising:  
a first light-guide unit comprising a first prism, a second prism, and a first mirror plane, wherein the first mirror plane is installed between the first prism and the second prism for reflecting and transmitting light;  
a second light-guide unit comprising a third prism, a fourth prism, and a second mirror plane, wherein the second mirror plane is installed between the third prism and the fourth prism for reflecting and transmitting light;  
a third light-guide unit comprising a fifth prism, a sixth prism, and a third mirror plane, wherein the third mirror plane is installed between the fifth prism and the sixth prism for reflecting and transmitting light; and  
a holder comprising:  
a first installation area for installing the first light-guide unit;  
a second installation area for installing the second light-

guide unit;  
a third installation area for installing the third light-guide unit;  
a first frame installed between the first installation area and the second installation area; and  
a second frame perpendicular to the first frame and installed between the second installation area and the third installation area;  
the method comprising:  
glueing and attaching a first plane of the first prism to a first side of the first frame and glueing the first light-guide unit to the first installation area;  
glueing and attaching a second plane of the third prism to a second side of the first frame and glueing the second light-guide unit to the second installation area; and  
glueing and attaching a third plane of the fifth prism to a third side of the second frame and glueing the third light-guide unit to the third installation area.

[c7] 7.The method of claim 6 further comprising:  
glueing the first prism onto the holder;  
glueing the second prism onto the holder;  
glueing the third prism onto the holder;  
glueing the fourth prism onto the holder;  
glueing the fifth prism onto the holder; and  
glueing the sixth prism onto the holder.

- [c8] 8.The method of claim 7 further comprising:  
applying glue circularly on the holder when glueing the first prism, the second prism, the third prism, the fourth prism, the fifth prism, and the sixth prism onto the holder.
- [c9] 9.The method of claim 6 further comprising:  
glueing the first light-guide unit onto the first installation area while keeping the first mirror plane perpendicular to the second mirror plane and glueing the second light-guide unit onto the second installation area.
- [c10] 10.The method of claim 6 further comprising:  
glueing the first light-guide unit onto the first installation area while keeping the first mirror plane parallel to the third mirror plane and glueing the third light-guide unit onto the third installation area.
- [c11] 11.The method of claim 6 further comprising:  
glueing the second light-guide unit onto the second installation area while keeping the second mirror plane perpendicular to the third mirror plane and glueing the third light-guide unit onto the third installation area.
- [c12] 12.The method of claim 6 wherein the second side of the first frame is parallel to the first side of the first frame.